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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,944	06/21/2006	Kevin A. Gray	564462003900	2689
45975 7590 01/18/2008 VERENIUM C/O MOFO S.D. 12531 HIGH BLUFF DRIVE SUITE 100 SAN DIEGO, CA 92130-2040			EXAMINER RAGHU, GANAPATHIRAM	
			ART UNIT 1652	PAPER NUMBER
			MAIL DATE 01/18/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/532,944

Applicant(s)

GRAY ET AL.

Examiner

Ganapathirama Raghu

Art Unit

1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1, 46, 53, 56-58, 61, 64, 66, 68, 70, 73, 107, 125, 126, 130, 131, 133, 135, 137, 138, 140, 157, 161, 169, 171, 218, 221, 225, 229, 231, 232-234, 241, 262, 265, 269 and 271-273 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1,46,53,56-58,61,64,66,68,70,73,107,125,126,130,131,133,135,137,138,140,157,161,169,171,218,221,225,229,231-234,241,262,265,269 and 271-273.

Detailed Action

Claims 1, 46, 53, 56-58, 61, 64, 66, 68, 70, 73, , 107, 125, 126, 130, 131, 133, 135, 137, 138, 140, 157, 161, 169, 171, 218, 221, 225, 229, 231, 232-234, 241, 262, 265, 269 and 271-273 are pending.

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I: Claims 1, 46, 56-58, 61, 133 in part and 265, drawn polynucleotide, probe, vectors, host cells the method of making the said polypeptide and nucleic acid array .

Group II: Claims 53 and 262, drawn to an amplification primer pair for amplifying the elected polynucleotide sequence of group I.

Group III: Claim 64, drawn to transgenic non-human animal comprising the elected polynucleotide of group I.

Group IV: Claim 66 and 68, drawn to transgenic plant and seed comprising the elected polynucleotide of group I.

Group V: Claim 70, drawn to an antisense oligonucleotide comprising a nucleic acid sequence complementary to the elected polynucleotide of group I.

Group VI: Claims 73, 107, 125, 126, 130, 131, 133 in part, 138, 140 and 225, drawn to polypeptide, compositions thereof and polypeptide array.

Group VII: Claims 135 and 137, drawn an antibody and a hybridoma comprising an antibody, which binds specifically to the elected polypeptide of group VI.

Group VIII: Claims 157 and 161, drawn to a computer and computer readable medium.

Group IX: Claim 169, drawn to method of isolating a nucleic acid encoding an amylase by hybridization using a probe from the elected polynucleotide of group I.

Group X: Claim 171, drawn to method of generating a variant nucleic acid encoding an amylase by using the template of the elected polynucleotide of group I.

Group XI: Claims 218 and 229, drawn to method of hydrolyzing a starch, said method comprising an amylase of the elected polypeptide of group VI.

Group XII: Claim 221, drawn to method of liquefying or removing starch from a composition, said method comprising an amylase of the elected polypeptide of group VI.

Group XIII: Claim 231, drawn to method of textile processing, said method comprising an amylase of the elected polypeptide of group VI.

Group XIV: Claim 232, drawn to method of paper, fiber or pulp processing, said method comprising an amylase of the elected polypeptide of group VI.

Group XV: Claim 233, drawn to method of treatment of lignocellulosic fibers, said method comprising an amylase of the elected polypeptide of group VI.

Group XVI: Claim 234, drawn to method of treatment of producing a high-maltose or high-glucose syrup, said method comprising an amylase of the elected polypeptide of group VI.

Group XVII: Claim 236, drawn to a drilling process, said method comprising an amylase of the elected polypeptide of group VI.

Group XIX: Claim 241, drawn to method of using an amylase in brewing alcohol, said method comprising an amylase of the elected polypeptide of group VI.

Group XX: Claim 271, drawn to method of producing a food or feed, said method comprising an amylase of the elected polypeptide of group VI.

Group XXI: Claim 233, drawn to method of corn wet milling process, said method comprising an amylase of the elected polypeptide of group VI.

Group XXII: Claim 273, drawn to method of baking process, said method comprising an amylase of the elected polypeptide of group VI.

The inventions listed as Groups I-XXII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

An international or a national stage application containing claims to different categories of invention will be considered to have unity of invention if the claims are drawn only to one of the following categories:

- 1) A product and a process specially adapted for the manufacture of said product or
- 2) A product and process of use of said product; or
- 3) A product, a process specially adapted for the manufacture of said product and a use of said product; or
- 4) A process and an apparatus or means specifically adapted for carrying out the said process; or
- 5) A product, a process specially adapted for the manufacture of said product and an apparatus or means specifically designed for carrying out the said process.

37 CFR 1.475(c) states: If an application contains more or less than one of the combination of categories of in an invention set forth in paragraph (b) of this section, unity of invention might not be present.

In addition, the PCT does not provide for multiple products or methods within single application, therefore, unity of invention is lacking with regard to Groups I-XXII; see 37 CFR 1.475. 37 CFR 1.475 (d) also states: If multiple products, processes of manufacture or uses are claimed, the first invention of the category first mentioned in the claims of the application and the first recited invention of each other categories related thereto will be considered as the main invention in the claims, see PCT Article 17(3)(a) 1.47(c).

37 CFR 1.475(e) further states; the determination whether a group of invention is so linked as to form a single inventive concept shall be without regard to whether the inventions are claimed in separate claims or as alternative within a single claim.

The inventions listed as Groups I-XXII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical feature for the following reasons: The DNA of Groups I, II, V, the transgenic animals of Group III, transgenic plants of group IV, the protein of Group VI, the antibodies of Group VII, and the computer of Group VIII do not share a corresponding special technical feature even though the DNA encodes the protein because the prior art clearly teaches isolation and purification of extremely thermostable alpha-amylase (see Laderman et al., J. Biol. Chem., 1993, Vol. 268(32): 24394-24401, in IDS). Therefore, the only shared technical feature of these claims polynucleotides encoding polypeptides thermostable amylases does not constitute a special

technical feature as defined in PCT Rule 13.2 as it is not a feature which defines a contribution the claimed invention make over the prior art. The methods of Groups IX-XXII do not share any technical feature as they comprise unrelated steps and produce unrelated effects. The methods of Groups IX-X do not share any technical feature with Groups XI-XXII and do not have unity of invention with Group I as Group I already includes a method of use of the DNA which comprises unrelated steps to the methods of Groups XI-XXII and 37 CFR 1.475 does not provide for the inclusion of multiple methods of use within the main invention.

Searching more than one of Groups I-XXII would represent a burden on the Office for the following reasons. Because the products used in the method of Groups IX-X and the products of Groups VI and VII do not share a special structural and functional feature, a search for any one said product would not encompass a search for any other said products used in the method of Group IX-X. Thus, the search for more than one of Groups I-XXII would be a burden on the Office. A search of any one of the products of Groups I-VII would not encompass a search of any of the methods of Groups IX-XXII, or vice versa, because said methods are not the only methods of making or using said products. These inventions lack Unity of Invention for the reasons given above. Furthermore, each invention has acquired a separate status in the art due to their recognized divergent subject matter and, thus, searching more than one invention would be a burden on the Office. Therefore, restriction for examination purposes, as indicated, is proper.

Election of Sequence

Group I, II, IV and VI contains claims directed to the following patentably distinct sequences of the claimed invention: the various sequences recited in the claims (polynucleotide sequences with SEQ ID NOs: 1, 5, 7, 11, 13 and 15 and polypeptide sequences with SEQ ID

NOs: 2, 6, 8 12, 14 and 16) have specific activities. Furthermore these sequences have different structure and function. The above products can be used exclusive of each other such that they do not share unity of invention under 37 CFR 1.475.

Applicant is required under 35 U.S.C. 121 and 372 to elect a single appropriate disclosed SEQ ID NO: associated with the respective group for prosecution on the merits to which the claims are restricted. Note that this is a restriction requirement to sequence and NOT a species election.

MPEP 803.04 states: Nucleotide sequences encoding different proteins are structurally distinct chemical compounds and are unrelated to one another. These sequences are thus deemed to normally constitute independent and distinct inventions with the meaning of 35 U.S.C. 121. Absent evidence to the contrary, each such nucleotide sequence is presumed to represent an independent and distinct invention, subject to a restriction requirement pursuant to 35 U.S.C. 121 and 37 CFR 1.141et seq. It has been determined that 1(ONE) sequence constitutes a reasonable number for examination purposes under the present conditions. At present the huge number of submissions of claims directed to various sequences, such as nucleic acids or polypeptides, is so large that the election of sequence of this type is now deemed to be practically appropriate so as to not overwhelm the examination and search processes for such claims. Examination will be restricted to only the elected group and the elected amino acid /nucleotide sequence.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Rejoinder of restricted inventions

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitation of the allowable product claim will be rejoined in accordance with the

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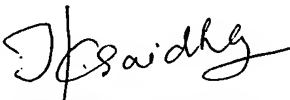
provisions of M.P.E.P. 821.04. Process claims that depend from or otherwise include all the limitation of the patentable product will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after allowance are governed by 37 C.F.R. 1.312.

In the event of a rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 C.F.R. 1.104. thus, to be allowable, the rejoined claims must meet the criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See "Guidance on Treatment of Product and Process Claims in light of In re Ochiai, In re Brouwer and 35 U.S.C. 103(b), 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that process claims should be amended during prosecution either to maintain dependency on the product claims or otherwise include the limitation of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See M.P.E.P. 804.01.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ganapathirama Raghu whose telephone number is 571-272-4533. The examiner can normally be reached on 8 am - 4.30 pm EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 for regular communications and for After Final communications. Any inquiry of a general nature or relating to the status of the application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Patent Examiner
Art Unit 1652
Jan. 15, 2008.


TEKCHAND SAIDHA
PRIMARY EXAMINER